



# STATE OF NEVADA

Department of Conservation & Natural Resources

Brian Sandoval, Governor

Leo M. Drozdoff, P.E., Director

DIVISION OF ENVIRONMENTAL PROTECTION

Colleen Cripps, Ph.D., Administrator

## FACTSHEET (pursuant to NAC 445A.236)

**Permittee Name:** BARRICK TURQUOISE RIDGE  
HC66 - BOX 220  
GOLCONDA, NV - 89414

**Permit Number:** NS0096009

**Location:** BARRICK TURQUOISE RIDGE JOINT VENTURE MINE, HUMBOLDT  
HC66 - BOX 220 - 28 MILES NE OF GOLCONDA, GOLCONDA, NV - 89414  
LATITUDE: 41.216111, LONGITUDE: -117.243889  
TOWNSHIP: 39N, RANGE: 42E, SECTION: 27, 28, 33, 34

Outfall / Well Num	Outfall / Well Name	Location Type	Well Log Num	Outfall City	Outfall State	Outfall Zip	Outfall County	Latitude	Longitude	Receiving Water
001	STP-001, STP-002	Internal Outfall		GOLCONDA	NV	89414	HUMBOLDT	41.2150	-117.243056	TAILINGS IMPOUNDMENT
002	STP-003	Internal Outfall		GOLCONDA	NV	89414	HUMBOLDT	41.228889	-117.23	TAILINGS IMPOUNDMENT
003	ARSENIC TREATMENT PLANT	Internal Outfall		GOLCONDA	NV	89414	HUMBOLDT	41.226389	-117.229167	STP-003

### General:

Barrick Turquoise Ridge, Inc. owns the Turquoise Ridge Joint Venture Mine (TRJVM), an underground gold mine operated jointly by Barrick Gold Corporation and Newmont Mining. TRJVM is located approximately 28 miles northeast of the community of Golconda, in Humboldt County, Nevada.

Domestic wastewater generated from restroom and shower facilities at the mine site is treated in three separate Seprotech™ package wastewater treatment plants (STP-001, STP-002, and STP-003). STP-001 and STP-002 operate in parallel and are located southeast of the main hoist structure; STP-003 is located northeast of the old mill site. The package plants are designed to treat and disinfect a 30-day average flow of 12,500 gallons of influent per day using fixed-film rotating disk biological contactor technology. Each unit is comprised of a primary settling chamber, a “rotor zone” with ≈7000 square feet of bio-support media, a final settling chamber, and a chlorine tablet feeder.

Due to the low flows generated from the administrative/mine hoist site (< 2,800 gallons per day), STP-001 and STP-002 are currently operated in rotation with only one of the package plants receiving influent at any time.

STP-001 and STP-002 discharge secondary treated and disinfected effluent to a 12” HDPE pipe that also carries mud and sump water removed from the mine. This pipeline discharges to any of 13 mud cells (drying beds) located in the southwest corner of a 270-acre HDPE double-lined tailings impoundment. Dried material from the mud cells is removed and transported to Newmont’s Twin Creeks Mine site for processing. STP-003 discharges secondary treated and disinfected effluent directly to the tailings impoundment for final disposal.

In addition to domestic wastewater, STP-003 occasionally receives backwash water from a small potable water treatment plant designed to reduce the amount of arsenic in the plant’s source water. The arsenic treatment system includes two pressure vessels containing granular ferric oxide. Arsenic is removed by

passing raw well water through the pressure vessels where dissolved arsenic adsorbs to the granular media, reducing the level of arsenic in the water. The pressure vessels must be backwashed periodically to remove accumulated fines and reclassify the media beds. Backwashing is also required following media replacement. Wastewater produced during backwashing activities is sent to STP-003 for settling prior to discharge to the tailings impoundment.

Sludge is removed from the package plants as required and disposed of in the double-lined tailings impoundment which is operated under Bureau of Mining Regulation and Reclamation mining permit NEV0086014.

### **Discharge Characteristics:**

During the previous 12 month reporting period (July 2012 through June 2013), the following average discharge concentrations were reported:

STP-001 and 002:

1. 30-day average flow - 2,775 gallons per day.
2. Daily maximum flow - 11,400 gallons per day.
3. BOD - 19 mg/L
4. Total suspended solids - 37 mg/L.
5. Fecal Coliform - 197 CFU. This average does not include a one time value of 6,600 CFU reported for a sample taken May 9, 2013.

STP-003:

1. 30-day average flow - 201 gallons per day.
2. Daily maximum flow - 2,358 gallons per day.
3. BOD - 8 mg/L
4. Total suspended solids - 14 mg/L.
5. Fecal Coliform - 56 CFU.

### **Receiving Water:**

All discharges will be to an HDPE double-lined tailings impoundment with leak detection (zero discharge). Effluent is not expected to contact area groundwater which is reported to be 259 feet below ground surface.

### **Summary of Changes From Previous Permit:**

In order to maintain consistency with current NDEP policy and the monitoring requirements of similar treatment facilities, the following permit changes have been made:

1. The requirement that the treatment systems be operated by a Grade II (minimum) certified operator has been added to this permit.
2. The numerical limits for fecal coliform have been changed to monitor and report. There is no reuse of treated effluent.
3. The requirement to monitor the flow, amount of arsenic, iron, and TDS in the discharge from the arsenic removal system has been added to this permit. This addition is due to recent activation of the on-site potable water treatment system.
4. The requirement to monitor the basin underdrain system (BUDS) has been removed from this permit. Monitoring of the BUDS is covered by BMRR permit NEV0086014.
5. Due to a new Permit naming convention at NDEP, Bureau of Water Pollution Control, the permit ID has been changed from NEV96009 to NS0096009. This change does not reflect a change in the type of permit being issued.

### **Proposed Effluent Limitations:**

The Division proposes the following permit limitations and monitoring requirements:



**WWTP Discharge Limitations Table for Sample Location 001 (Internal Outfall) To Be Reported Monthly**

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	30 Day Average	<= 0.0250 Million Gallons per Day (Mgal/d)		Effluent Gross	001	Continuous	METER
Flow rate	Daily Maximum	<= 0.0370 Million Gallons per Day (Mgal/d)		Effluent Gross	001	Continuous	METER
BOD, 5-day	Value		<= 45 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Solids, total suspended	Value		<= 45 Milligrams per Liter (mg/L)	Effluent Gross	001	Monthly	DISCRT
Coliform, fecal, colony forming units	Value		M&R Colony Forming Units per 100ml T (CFU/100mL)	Effluent Gross	001	Monthly	DISCRT

**WWTP Discharge Limitations Table for Sample Location 002 (Internal Outfall) To Be Reported Monthly**

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Flow rate	30 Day Average	<= 0.0125 Million Gallons per Day (Mgal/d)		Effluent Gross	002	Continuous	METER
Flow rate	30 Day Maximum	<= 0.0185 Million Gallons per Day (Mgal/d)		Effluent Gross	002	Continuous	METER
BOD, 5-day	Value		<= 45 Milligrams per Liter (mg/L)	Effluent Gross	002	Monthly	DISCRT
Solids, total suspended	Value		<= 45 Milligrams per Liter (mg/L)	Effluent Gross	002	Monthly	DISCRT
Coliform, fecal, colony forming units	Value		M&R Colony Forming Units per 100ml T (CFU/100mL)	Effluent Gross	002	Monthly	DISCRT

**NS OTHER - Discharge Limitations Table for Sample Location 003 (Internal Outfall) To Be Reported Monthly<sup>[1]</sup>**

Parameter	Discharge Limitations			Monitoring Requirements			
	Base	Quantity	Concentration	Monitoring Loc	Sample Loc	Measurement Frequency	Sample Type
Iron, total (as Fe)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Batch <sup>[2]</sup>	DISCRT
Flow, total	Total	M&R Gallons (gal)		Effluent Gross	003	Continuous	METER
Arsenic, total (as As)	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Batch <sup>[2]</sup>	DISCRT
Solids, total dissolved	Value		M&R Milligrams per Liter (mg/L)	Effluent Gross	003	Once Per Batch <sup>[2]</sup>	DISCRT

Notes (NS OTHER - Discharge Limitations Table):

1. If there is no discharge from this outfall during the reporting period, enter "No Discharge" on the Discharge Monitoring Report for this outfall.
2. Take one sample during each discharge event.

**Proposed Technology Based Effluent Limitations:**

N/A

**Proposed Water Quality-Based Effluent Limitations:**

N/A

**Waste Load Allocation:**

N/A

**Rationale for Permit Requirements:**

Monitoring is required to ensure that the treatment plant capacity is not exceeded and to assess the level of treatment being provided.

**Special Conditions:**

SA – Special Approvals / Conditions Table

There are no Special Approval / Condition items

**Flow:**

The Seprotech™ package wastewater treatment plants are each designed to treat a 30-day average flow of 0.0125 million gallons per day (MGD) and a daily maximum flow of 0.0185 MGD.

**Discharges From Future Outfalls:**

**Corrective Action Sites:**

There are no NDEP Bureau of Corrective Actions remediation sites within a one mile radius of this facility.

**Wellhead Protection Program:**

This facility is not located within a Drinking Water Protection Area or a Wellhead Protection Area established for any well sources.

**Schedule of Compliance:**

SOC – Schedule of Compliance Table

Item #	Description	Due Date
1	The Permittee shall submit two (2) copies of an updated Operation and Maintenance (O&M) Manual for review and approval by the Division. The O&M Manual shall be prepared by a Nevada Registered Professional Engineer or other qualified person. If no updates or revisions are required, the Permittee shall submit a letter by the due date stating that there have been no changes to the previously approved O&M Manual. <sup>[1]</sup>	12/31/2013
2	The Permittee shall submit documentation showing that a minimum Grade II Certified Operator has been hired or contracted to oversee operation of the three Seprotech™ package wastewater treatment plants.	12/31/2013

## Notes (Schedule of Compliance Table):

- O&M Manuals prepared by Nevada Registered Professional Engineers must be signed and stamped in accordance with NAC 625.610.

**Deliverable Schedule:**

DLV– Deliverable Schedule for Reports, Plans, and Other Submittals

Item #	Description	Interval	First Scheduled Due Date
1	Discharge Monitoring Reports	Quarterly	1/28/2014
2	Annual Report	Annually	1/28/2014

**Procedures for Public Comment:**

The Notice of the Division's intent to reissue a permit authorizing the facility to discharge to groundwater of the State of Nevada subject to the conditions contained within the permit, is being sent to the **Reno Gazette Journal and Humboldt SUN** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing until 5:00 P.M. **10/10/2013**, a period of 30 days following the date of the public notice. The comment period can be extended at the discretion of the Administrator.

A public hearing on the proposed determination can be requested by the applicant, any affected State, any affected interstate agency, the Regional Administrator of EPA Region IX or any interested agency, person or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reasons why a hearing is warranted. Any public hearing determined by the Administrator to be held must be conducted in the geographical area of the proposed discharge or any other area the Administrator determined to be appropriate. All public hearings must be conducted to accordance with NAC 445A.238.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.650.

**Proposed Determination:**

The Division has made the tentative determination to issue / re-issue the proposed 5-year permit.

Prepared by: **Arthur Marr III**

Date: **9/5/2013**  
Title: **P.E.**